All these observations coupled with Rb-Sr and REE data on whole rocks lead us to suppose that before being emplaced as orogenic lherzolite bodies, the mantle piece suffered a very complex geodynamic cycle where lherzolite suffer successive light partial melting events. Pyroxenites are created at different stades.

Thus, in the same mantle part are regrouped ultramafic and mafic rocks which were isotopically homogenized at different ages.

To decipher the history the only way is to date with Sm-Nd chronometers different kinds of mafic layers. This has been attempted. The preliminary results we have concern the last mafic layers created in the massifs : garnet clinopyroxenites in Beni Bousera, and gabbros in Lanzo. They give new informations about the tectonic emplacement of the lherzolite body.

F11

XENOLITHS OF PERIDOTITE, PYROXENITE AND ECLOGITE IN GRANULITE ROCKS OF PRE-HERCYNIAN UPPER MANTLE AND LOWER CRUST IN THE EASTERN BOHEMIAN MASSIF (CZECHOSLOVAKIA)

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Garnet peridotites, peridotites, pyroxenites, and several types of eclogites form inclusions in pre-Hercynian garnet-kyanite (± opx) granulites. Mineral assemblages of inclusions, structural position and distinct reaction rims show that the xenoliths have been incorporated in the parental rocks of granulite before the metamorphic foliation took place.

The element distribution between garnet, orthopyroxen, clinopyroxen indicate relict temperatures and pressures corresponding to the upper mantle and lower crust conditions. Some of the inclusions however are of crustal derivation and exhibit the mineralogy corresponding to the upper crust.

F12

CRUSTAL SINKING OF THE ALMKLOVDALEN GARNET LHERZOLITE BODY (NORWAY)

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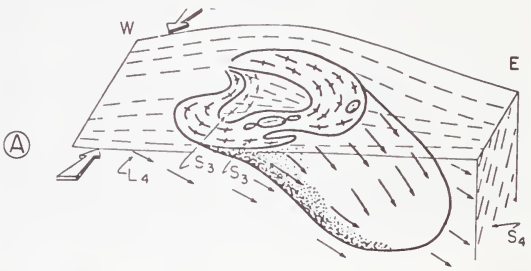
The Almklovdalen ultramafic body included in the Basal Gneiss of Southern Norway is composed mainly of amphibolitized/chloritized harzburgite and dunite with cores of layered garnet lherzolite.

Parageneses show a retrograde evolution starting in upper mantle conditions : P = 17-28 kb, T = 645-820 C (fixed by Medaris, 1980), and evolving in lower crust hydrated conditions to P 7kb, T = 650-700 C.



Structures and microstructures indicate a continuum of deformation related with the paragenetic evolution, developed during the Svecofennian cycle (1400-1700 Ma).

Microstructural study emphasizes the role of fluids in favoring annealing of textures and enlarging the field of "low temperature" slip system in olivine.

Structural study related with gravity data suggest a geometry of "inverse diapir" (figure) developed by gravity sinking, during this evolution in lower crust conditions.